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TIC

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TIC

A MAGAZINE FOR
DENTISTS
DENTAL HYGIENISTS
DENTAL ASSISTANTS

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February 1961 Vol. XX No. 2

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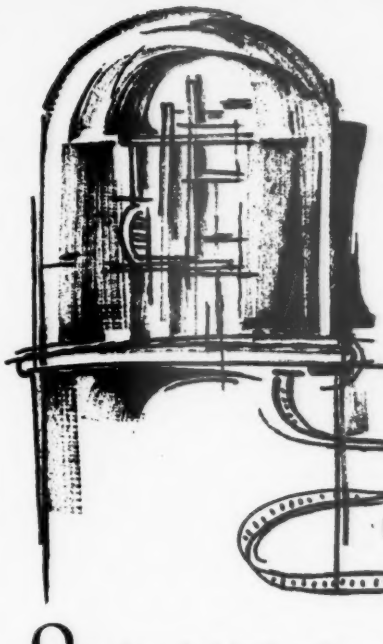

A DENTIST LOOKS AT WALL STREET

By ARTHUR H. LEVINE, D.D.S.

One piece of advice I used to get from my father regularly was: "Keep away from the stock market." Since this came from a man who made his living in Wall Street, I realized it was no ordinary piece of parental caution. He knew the business thoroughly, including all its dangers.

So when he warned me to keep out of Wall Street it had some weight behind it. But he need not have worried, because I was a dental student at the time with no interest whatsoever in the Market. As a matter of fact, it bored me. Frequently, when I came home from Philadelphia on a school holiday, he would eagerly seat me in his study and explain, with great earnestness, the intricate principles of his transactions. And I, with equal eagerness, was impatient to make the most of the holiday.

Perhaps my father finally had to admit to himself that I possessed neither the interest nor the special talent to make me a worthy successor. And having reached that conclusion, he must have reasoned that, under the circumstances, I should be much better off if I stayed away from the Market.

I did just that for 15 years. Establishing a dental practice and raising a family claimed all my efforts and energies. The financial section of the newspaper was used only for peeling potatoes. Then, in a reflective moment, a thought came to mind, "What about retirement?" It wasn't too serious a consideration, since retirement seemed thousands of years away. But didn't one have to prepare early for that sort of thing?

A few figures with pencil and paper made it chillingly clear that this was a problem that would take years to solve—and why hadn't I done something long before this? The realization that whatever had to be done I had to do by myself, while friends of mine working for large companies had it all done for them, made me feel lonely. A retirement income of $100 a week (if it came from anything as safe as bank interest) meant that I should have to accumulate something in the neighborhood of $160,000 by the time I retired. No small assignment for a dentist, working by himself, with many years of college expense awaiting him, not to mention expenses that could never be foreseen.

Large companies have an advantage in that funds set aside for a retirement are tax-deductible. This is not the case for an indi-

vidual, although legislation to change this has been proposed in the Congress. In the meantime, dentists and other professional men will have to work out their own solution. Very few individuals have the discipline or the means to set up a proper fund early enough. They have all they can do to take care of the necessities, including the mortgage, insurance, and savings, if any.

Erosion of Buying Power

Concurrent with the realization that no pension fund would be waiting for me at the end of the road, came another eye-opener: the effect of inflation on savings. It is difficult for some of us to understand that $100 put in the bank 20 years ago no longer possesses the same buying power. Although you could withdraw the money today from the bank and watch the teller count out $100 in bills, those bills would not be able to buy as much automobile (for example) as the $100 deposited 20 years ago. During that period an average car cost about $800. Today it would be around $3,000. That means that $100 deposited 20 years ago could have bought one-eighth of a car while today it would buy only one-thirtieth.

The experience of a friend of mine, a physician, will provide similar testimony. He was ready to build a house and office, having been in practice for some time. But he was deeply concerned with the rapidly increasing cost of building. Maybe he should wait for prices to come down a bit. My advice was to build immediately regardless of rising prices. I was no inflation expert. It was just that his needs demanded it. After much consideration, he took my advice. Five years later he looked back with a sigh of satisfaction because the same house and office would have cost him 15 to 20 percent more had he waited.

It was, therefore, those two all-important considerations, the need to establish a retirement program plus the "hedge" against inflation, that finally brought me to the stock market.

That was ten years ago. I have been in the market ever since and intend to stay there. I am firmly convinced that the stock market is the best place for my surplus funds. Business opportunities, as far as the professional man is concerned, simply do not exist. The risks are so great and the rewards so few that, as far as this discussion is concerned, they can be discarded. Airline pilots, with relatively long periods of free time between flights, have been particularly vulnerable to disastrous investments in gas stations, bars and grills, sporting goods stores, and dozens of others. A similar list could be made from the unfortunate experiences of dentists, physicians, lawyers, and accountants.

The same may be said of real estate. Although money has been made in owning property, it is a field that requires considerable knowledge and experience. The common belief that anyone who bought property 20 years ago could not help but make a handsome profit today is erroneous. Even in New York City, in certain areas, property can be bought today for a price less than the tag it carried 50 years ago. The average professional man is gambling when he puts his money in real estate unless he is well advised.

Advantages of Stock Market

But the stock market is different. Here we have the privilege and opportunity of buying a share of the finest companies in the land. It can be a large share or a small share and it can be in any industry you like.

The fact that some people use the stock market as a gambling medium should not blind the rest of us to its excellence as a safe investment for surplus funds. Investing in the stock market can be tailored to each one's needs.

The range extends from the safest bonds to the most volatile common stock. And if that choice poses too much of a problem, there are always mutual funds in which your invested dollar is spread over a large selection of bonds and stocks chosen by that particular fund. The mutual funds have increased in such numbers and variation of portfolios that you can find one specializing in almost any kind of stock you like.

Obviously, the safer the investment, the smaller the yield. If you want the comfortable feeling of owning A.T.&T. stock, then you must be satisfied with a low rate of interest. Today it is being quoted

at around 105 and it pays a dividend of $3.30 a year. That is roughly 3½ percent.

Why not a government bond, then? The answer is that the government bond will not increase in value, if the inflation continues, while the stock may and probably will. Looking back over its history, it has done just that. Not too many years ago, A.T.&T. was selling for 150. Today the price of 105 is the result of a three-for-one split, so that actually the stock has risen from 150 to 279, or nearly three times 105.

Some men divide their surplus funds into two or three groups and use one of the groups for the more speculative stocks, while reserving the other, or larger share, for the safer investments. There are hundreds of variations.

The important point is that money (outside of cash for immediate needs or emergencies) should not sit in the bank. It must be invested in something tangible like stocks or real estate or inventory. Each time your dental salesman urges you to buy a large quantity of a certain material before it advances in price is an attempt on his part to have you protect yourself against inflation. Recently, the price of filling porcelain of one manufacturer went up roughly from $3 to $4. The dentist who had a large inventory of that material on hand could feel smug.

For the professional man, the stock market is almost an ideal place for surplus funds provided his thinking is one of investment and not one of speculation. An investor can buy stocks whenever he has accumulated a sum that satisfies him or he can do it on a regular basis in which stock is purchased for him each month for a fixed amount. Stocks can be disposed of at a moment's notice, a distinct advantage over real estate.

If for no other reason than to protect himself against the inroads of inflation, the professional man should take a look at Wall Street. If he does, he will find that he has a lot of company, because about 13 million people own stock today. Of that number, A.T.&T. has the lion's share: about 1.7 million. General Motors, Standard Oil (N.J.), and General Electric follow in that order.

How wrong can 13 million people be?

8 Beacon Hill Road
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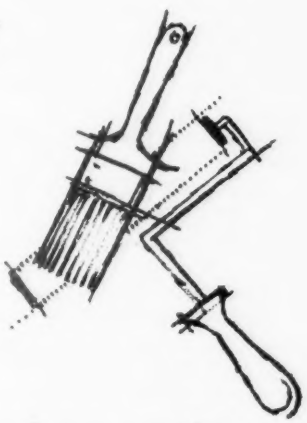
DECORATING DAY

Should the chair be right here,
Or perhaps over there?
Now what kind of drapes
Would make windows less bare?



No, I'm not a housewife.
I'll tell you out loud:
This is my first office
And, brother, I'm proud!

L. DARCY

SALIVA AND DENTURES

PART II

By JOSEPH MURRAY, D.D.S.

In the first installment in December 1960 TIC we described how Dr. Edward J. Mehringer utilized an acid beverage (cola) to indicate the degree of salivary flow.

Because the average pH of the normal resting saliva is about 6.3, while that of the saliva immediately after swallowing the cola beverage is about 7.5 to 8.0, failure of the saliva to respond with a rise in pH is evidence of a lack of salivary secretion.

The rationale is that, in order to have an abrupt rise in salivary pH, there must be a transient hypersecretion of saliva with an elevated pH, while a lowering of the pH indicates a hyposecretion or lack of salivary flow and buffering potential.

Drs. Lester W. Burket, Charles H. Jamieson, Maury Massler, Edward J. Mehringer, and Joseph S. Landa are only a few of the outstanding clinicians who recognize that any impairment of the salivary flow or buffering potential necessitates placing dentures over tissues that are in a constant state of mild irritation because of the hyperacidity of the environment.

Occasionally, the evaluation of salivary flow will disclose a dry mouth, quite common in senescence or old age. In such cases, dentures are often contraindicated because tissue tolerance is inadequate, retention is lacking, and solid foods cannot be moistened, lubricated, or swallowed unless the bolus is wetted constantly with a beverage.

However, there are extenuating circumstances, such as a patient's youth or the urgency for a cosmetic effect, which demand the construction of dentures. Such situations require heroic measures to keep the dentures wearable even for limited usage.

A decreased or absent salivary flow may be accompanied by annoying and painful symptoms, says Dr. Lester W. Burket. If the oral mucosa and the tongue become irritated, and secondary mucosal changes occur, this condition is spoken of as xerostomia, not a disease entity, but rather a group of symptoms which may result from a variety of causes.

Dr. Burket points out that a psychic stimulus, such as profound emotion or fear, results commonly in temporary asialorrhea, of little clinical significance in such instances.

More devastating, however, is the systemic disease which is accompanied by a high temperature or dehydration resulting in diminished salivation. For example, a dry mouth is a characteristic clinical finding in the uncontrolled diabetic patient, the typhoid patient, and the patient ill with pneumonia. A decreased salivary flow in postmenopausal patients has also been noted by various clinicians.

Dry mouth is a common symptom in epidemic encephalitis and some brain tumors. At times, it may be necessary to determine whether the asialorrhea is due to actual dysfunction of the salivary gland, or some break in the nerve pathways controlling salivation.

Under such circumstances, it is Dr. Burket's contention that if salivary flow can be stimulated by a centrally acting sialogogue such as pilocarpine, but not by a peripheral acting one such as lemon juice, it indicates a defect in the taste bud-salivary center pathway and the integrity of the salivary center-salivary gland pathway, as well as the secretory ability of the salivary glands.

Drugs like belladonna, atropine and ephedrine will slow salivary secretion; in some instances the therapeutic effect of the drug is judged by the decrease in salivary flow.

Irradiation of the cervicofacial region will diminish salivation or cause its cessation with a resulting mucosal inflammation and mechanical irritation secondary to the decreased flow of saliva. This often results in a persistent, painful stomatitis.

Decreased Flow in Aged

Last, but not least, a decreased salivary flow is a common complaint of the aged. Dr. Maury Massler attributes the frequent diminished function of the salivary glands with its accompanying dryness, in

senescence, to the atrophy of the cells lining the intermediate ducts. This results in abnormal taste sensations and mouth pain.

And Dr. Charles H. Jamieson makes the observation that 80 percent of the women who have passed their menopausal period complain of a burning sensation in the tongue and lips—often associated with asialorrhea. Coupled with the loss of elasticity of the mucosa, the resulting mouth environment may well create a tenderness which makes wearing a removable denture unbearable.

With a diminished salivary flow, the ptyalin content of the saliva is also reduced. Approximately 60 percent of the ingested cooked starch is digested in the mouth of a young adult; but in the elderly person, relatively little starch digestion takes place in the oral cavity, says Dr. Burket.

The pancreatic amylase is usually able to compensate for this ptyalin deficiency of the saliva. Although their clinical significance was not determined, histologic changes in the salivary glands of the aged have been observed. Also, the reaction of the saliva becomes more neutral and slightly alkaline with age, particularly so with the edentulous patient.

Dr. Burket states that the decreased salivary flow in the declining years frequently results in an annoying stickiness which may lead to mechanical irritation. The loss of the normal cleansing and protective action of the saliva renders the tissues more susceptible to infection.

Insufficient salivary flow also makes denture retention more difficult; both the quality and quantity of saliva are important factors. In the aged, the small solitary mucous glands of the palate, cheeks, and lips secrete a thick, ropy saliva with a high mucin content which adversely affects retention of appliances—full dentures in particular.

In senescence, the tongue loses it normal muscle tone and offers less resistance when palpated bidigitally; the normal papillary coating becomes decreased in amount and the dorsum of the tongue has an atrophic appearance in contrast to its mien in middle life.

Moreover, the decreased flow of saliva results in considerable irritation to the sides of this organ when it comes in contact with the teeth or prosthetic appliances. Glossodynia (pain in tongue) or glossopyrosis (burning tongue) is a common complaint of the senescent patient; and many times no satisfactory explanation can be found.

That dentures may have a disturbing effect upon the oral mucosa merely by their action as a foreign body is a well-known fact. Some patients have hypersalivation and others dry mouth or xerostomia soon after they become denture wearers. Cessation of excessive salivation has followed mere discontinuance of wearing the dentures.

Dr. Joseph S. Landa believes that the biologic principles underlying reflex actions and their stimulation tend to support the thesis that complete dentures may in exceptional instances be a disturbing factor to the oral cavity generally and to the oral mucosa in particular, by their mere physical presence as a foreign object.

It is conceivable that the presence of a denture will make some difference in the secretory function, ventilation and oxidation of the oral structures covered by the prosthesis since they no longer function under perfectly normal conditions, claims Dr. Landa.

Since every organ or tissue of the human body is endowed physiologically with self-cleansing properties, complete dentures will certainly interfere—to some extent at least—with this process.

Perhaps not so significant as hyposecretion, albeit an important contributing factor to the denture wearer's discomfort, is an increased salivary secretion, also known as ptyalism, sialorrhea, and hypersecretion.

An individual suffering from such a salivary disorder will secrete up to ten quarts of saliva every 24 hours in contrast to the normal secretion of two to three pints.

Causes of Excessive Salivation

According to *Merck's Manual*, the causes of excessive salivation, in order of frequency, include:

1. Drugs or poisons, such as mercury, bismuth, arsenic, tobacco
2. Local inflammation accompanying diseases such as pemphigus, herpetic stomatitis, or Vincent's disease
3. Local irritation from teething or dental appliances
4. Infectious diseases, particularly rabies and smallpox
5. Reflex stimulation from liver, uterus (pregnancy), ovary and stomach
6. Disturbances of the nervous system, such as motion sickness, migraine, hysteria, irritation of

chorda tympani (usually with seventh nerve paralysis); or paralysis agitans, encephalitis lethargica, tic douloureux, and tabes.

Symptoms and signs of ptyalism are as follows: disordered taste and thickened speech may ensue; also indigestion and vomiting, due to the volume of saliva swallowed.

In mercurialism, the salivary glands are enlarged and painful and the saliva is irritating to the mucosa, skin, and lips. Also noted are a metallic taste, fetid breath, coated, swollen tongue, discoloration of the gums—especially in bismuthism—ulcerations of the gums and tongue. Systemically, abdominal pain and diarrhea are encountered.

Drugs having the ability to stimulate salivary flow are known as sialogogues, of which pilocarpine is the outstanding example. They act by stimulation of the central nervous system centers governing salivary flow.

1358 46 Street
Brooklyn 19, N. Y.

Part III—March TIC

A NEW HORIZON FOR THE AMERICAN DENTIST

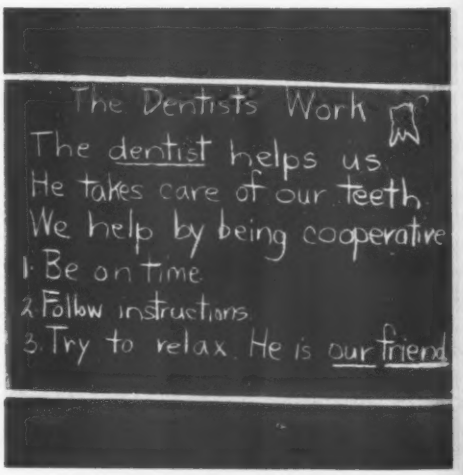
By MAYE ALLEN, SCHOOL TEACHER

The dentists of America are receiving some rather fine and impromptu, but genuine appreciation for their work. From the schoolchildren! It has been customary for some years in the elementary school's primary grades to include some attention to people who serve in the community – physician, fireman, postman, and others. Very recently, many units of study have added the dentist to the list.

Dental health is becoming more and more "popular" these days. Before, the children were told to "brush your teeth." Now, with all sorts of avenues of academic approach, and with television commercials slanted to their good dental health, the children need little motivation. Their teacher may begin with a visit to observe the dentist's work, briefly and when he isn't too busy. They are impressed by the office, the modern lighting, the furniture, and the amusing books provided for the youngster to read. The children have an ideal opportunity to satisfy curiosity about dental instruments and equipment and to overcome fears. They ask such questions as: "How did you learn your work?" . . . ". . . What do you do to a tooth too bad to help?" . . . "How can we help you?" . . . "Can I learn to be a dentist?"

The questions are answered. The children greatly admire the dentist. They are especially pleased to think of him as a friend, a normal and happy human being, one who enjoys much the same things as they do. They like to hear about his family, his hobbies, and his special ways of dealing with dental problems. They write him a thank-you note and put the location of his office on their map of the community. A summary may be made on the chalkboard to show how they feel about him. Often, a pupil decides it must be decorated appropriately with a drawing of a tooth! One pupil's big brother brought in a model of a huge tooth done by a coping saw in wood.

"I went to the dentist *alone!*" is a proud comment. In-school attention to the dentist's work is rewarding to him and his patients.


The Dentists Work
The dentist helps us
He takes care of our teeth
We help by being cooperative
1. Be on time
2. Follow instructions
3. Try to relax. He is our friend

An appraisal by a grade 2 pupil.

FOR THE WAITING ROOM

REMOVE THIS SECTI

Oral Pathology

It was obvious to the dentist that the woman patient was worried about mouth cancer.

"I was ill. I couldn't come sooner," she explained to him. "There's a sore on this side of my tongue." She tried to show him by holding her tongue out and pointing. "See the sore? It's been bothering me for two weeks." She looked up at the dentist. "Maybe a sharp edge on a tooth is causing it."

The dentist said quietly, "Well, let's have a look." He held her tongue with a piece of surgical gauze. He observed the lesion intently. Then he carefully checked her teeth for sharp edges.

"I don't think a tooth is causing this, Mrs. Rowan," the dentist said frankly. "The only way to be sure about it is to do a biopsy."

She looked at him anxiously.

"It's painless," he assured her. "It means taking a small piece of the sore and having it examined by a specialist in that work—an oral pathologist."

She responded hesitantly: "If you thin
so . . ."

"I certainly do. It's the best course
I'll refer you to a pathologist. He
biopsy and give us a prompt
we'll know exactly what we h
what we ought to do abo

Doctor Wells Tough
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Dental Detection

THE STORY OF ORA

ARABIAN NIGHTS IN DENTISTRY

RATHOLOGY

BOOK TWO: CHAPTER II

The oral pathologist is not merely a kind of biological detective in dentistry, important as this role is in identifying disease of the mouth and indicating means of treatment and cure. Oral pathology is, broadly, the study of oral disease, and thus is basic to the whole field, to all phases of dentistry.

In addition to diagnostic pathology, which involves studying living tissue specimens to determine the nature of the disease present and to evaluate the treatment given, oral pathology has other categories.

One is experimental oral pathology, which concerns the mechanisms, the ways and means of how disease comes into existence. This category is usually identified with laboratory investigation conducted on animals. It is also concerned with prevention as well as treatment of disease, because reactions of tissue in experiments often indicate means of prevention.

Clinical pathology is another category. It studies the signs and symptoms of oral disease through clinical diagnosis.

The practice of oral pathology today, however, is largely carried on in teaching institutions, the Armed Services, and research facilities. Few, if any, pathologists conduct a private practice limited to that specialty, for there is not sufficient practice. Consequently the pathologist who is not on the staff of an institution usually can be found practicing another specialty, like oral surgery. Therefore, the average family dentist may refer a patient to a specialist who presumably is practicing another specialty—oral surgery, periodontics, or even general dentistry.

The pathologist is equipped and trained not only to do biopsies, but to carry out other laboratory procedures, conduct radiographic examinations, and employ other scientific aids and tools to determine disease, indicate treatment, and evaluate therapy.

Today there is a national professional organization devoted to the advancement of this specialty—the American Board of Oral Pathology. No one can qualify as a specialist unless he meets the rigid requirements of the Board, which include two years of training in the specialty and three years of practice, at least half of which must have been spent in the specialty.

But perhaps the greatest role of the pathologist is his teaching role. He must instruct dental students and dentists in oral pathology and oral medicine. Without such a sound scientific foundation, the dentist cannot become the well-trained biologist he must be in ever-increasing degree if he is to bring the full potential of his profession to those who look to him for the highest standards of dental care.

The oral pathologist is a unique specialist who serves the patient, the dental student, and the dentist.

PHOTOS BY NATIONAL INSTITUTE OF DENTAL RESEARCH

"...the best in dental care..."

THE NEED for careful training of dentists so that they may skillfully and artfully replace lost structures is indeed very great, but the pattern of practice in all of the health areas has indeed, as in life itself, become more complicated. It is necessary, therefore, for the dentist not only to be a skilled worker, but he must also be a well-oriented biologist if he is to bring to the patient the best in dental care and to himself the satisfaction which he richly deserves from the practice of his science and art.

MAJOR GENERAL JOSEPH L. BERNIER, Assistant Surgeon General, U.S. Army, and Chief of the Dental Corps; former Chief, Oral Pathology Division, Armed Forces Institute of Pathology; Registrar and Pathologist to the American Dental Association.

Dr. Mahlon Loomis

Dr. MAHLON LOOMIS

pioneer in dentistry and inventor of wireless telegraphy

By CURT PROSKAUER, D.M.D.

The American dentist Mahlon Loomis was one of the very few American pioneers in the use of porcelain in dentistry; here he made an outstanding contribution. He also invented wireless telegraphy.

But ask any dentist anywhere, even an American, who Mahlon Loomis was, and I am sure he will not even know the name. Much less will be be able to tell you anything of his achievements in dentistry or telegraphy, though, if fortune had been favorable, the latter invention would have made him one of the immortals. He was destined, however, to preach only to deaf ears, despite a demonstrated success; influential men called him a humbug because these skeptics knew nothing about electricity or its possibilities. The name and work of Loomis are forgotten. When he died there was no notice in the dental journals or any mention of his inventions. Nor is he mentioned in any of the various histories of dentistry. The excellent *History of Dental Surgery* by Charles Koch and Burton Lee Thorpe, published in 1910, does not devote to Mahlon Loomis one line of its third volume, which contains 108 detailed biographies of pioneer American dentists.

Born in 1826 in the small town of Oppenheim, New York, Mahlon attended the district school; most of his education, however, he acquired in the libraries of his grandfather and his father, and from the men themselves, for both were cultivated, of New England stock, and possessed a remarkable aptitude for imparting knowledge. Mahlon was always interested in the science of mechanics; he so often "invented something," as somebody put it, that his father advised him to become a dentist. At the age of 20 he went to Cleveland and entered the office of an old friend of his father, Dr. M. L. Wright, a successful dentist. After one or two years with Dr. Wright, Loomis made a tour of the neighboring communities, practicing dentistry, as was still the custom a hundred years ago, when the American Dental Association was founded. Loomis, a tall, wiry man, with a thin, intense face, set himself up in Earlville, New York. Then, after a short time, moved to Cambridgeport, Massachusetts, where he practiced very successfully for several years. In 1856 he married, moved to Philadelphia, but very soon left and went on to Washington, D.C., where he opened an office on Pennsylvania Avenue and practiced for over 20 years. He died of heart failure in 1886, at the age of 60.

Use of Porcelain in Teeth

In Cambridgeport, as a very young man Loomis experimented with kaolin and, as he says, invented "a new and useful improvement in the manufacture of artificial teeth." This consisted of teeth and plate,

made out of one piece of porcelain, and was patented both in the United States and Great Britain.

Eighty years before, in 1774, a similar method had been used by the Paris dentist Dubois de Chemant, but had never attained any importance because of the great difficulties involved, including the almost impossible task of properly governing shrinkage of the material in firing. Loomis solved these problems with ease. His invention is typical of his period—inventive genius and mechanical ingenuity in American dentistry far outstripped theory.

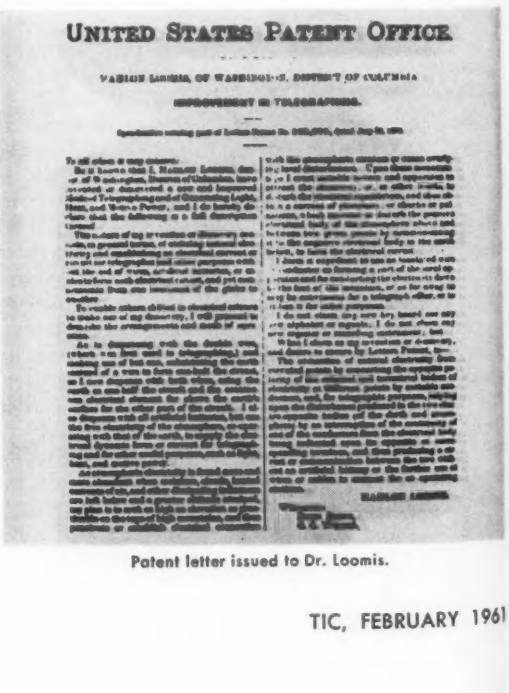
The tendency was manifested in many other fields as well. Americans have long been noted for their spirit of adventure and inventiveness, especially in the mechanical field; a century ago everybody had a new idea, and everybody tried to turn it into money. Loomis, much interested in electricity and its application, began experimenting with the mutual relation between electricity, magnetism, and motion; Joseph Henry, first secretary and director of the Smithsonian Institution in Washington, D.C., had written in great detail on the subject.

Loomis kept a diary (now in the manuscript department of the Library of Congress, Washington, D.C.). The following passage proves he was a believer in wireless telegraphy as far back as 1858: "I have had some ideas for a long time upon the subject of electricity, and more particularly as that element is connected with telegraphy. I have been for years trying to study out a process by which telegraphic communication may be made across the ocean without wires and also from point to point on the earth, dispensing with wires. And the grand feature which I have hoped would characterize the plan is that the electricity (or electro-magnetism, the element or power used) would be drawn from the atmosphere, and not produced by artificial or mechanical means. To use that which nature seems to have already produced and keeps constantly on hand in such immense quantities." The medium which Loomis intended to use for his purpose is the electric fluid from the clouds. The diary continues: "There is no doubt in my mind that a constant and never-failing current may be obtained powerful enough to telegraph across the ocean, to decompose water for light and for various mechanical purposes. And to this end I wish to write down some facts and ideas, hoping to add more and go further until successful experiments are made and the reality of this dream come to pass."

First Demonstration of Wireless Telegraphy

The dream *came* to pass when Loomis used statical electricity as a current—the statical fluid abundant in the atmosphere—and demonstrated wireless telegraphy in 1866 in the Blue Ridge Mountains of Virginia. He used no galvanic batteries, whereas all experimenters before him had depended upon artificial batteries of some kind for their current.

This first public demonstration of his "system of aerial telegraphy," as he called his invention, took place between two mountain peaks, 18 miles apart. From each peak an operator sent up a kite connected to an insulated copper wire whose other end was attached to a telegraph apparatus. These kites were automatically charged with sufficient atmospheric electricity so as to be able to act upon electricity situated at the considerable distance of 18 miles with no conductor. The operators were provided with telescopes for sighting from one station to the other and reading the signals. When all was in readiness, a message was sent by Loomis along his kite wires; this was received at the station on the other mountain top just as if the two kites had been connected with a wire in the ordinary way. These communications were continued until the fact had been thoroughly demonstrated to the many eminent scientists, senators, and electricians present that telegraphing could be done as readily without as with connecting wires. Shortly thereafter, Mahlon Loomis made a successful experiment in communication between vessels. This demonstration took place on Chesapeake Bay. The vessels were stationed about two miles apart, with a telegraphic apparatus on each. A wire was attached to the instrument and one end thrown into the water at a moderate depth. Another insulated wire of much greater length was let down much deeper into a colder stratum of water. The two strata of different temperatures, connected to the same battery, made a complete circuit and enabled communications to pass between the two ves-


UNITED STATES PATENT OFFICE.

IMPROVEMENT IN TELEGRAPHING.

Patent letter issued to Dr. Loomis.

sels without other connections. The experiment was a success. Loomis expressed the belief that the warm current of the Gulf Stream, with the adjacent cold water, could be used for long-distance telegraphing, the length of telegraphing depending on the more or less great difference in temperature of the water strata. At this time Loomis also told his friends he believed it would be easily possible to telegraph to or from a train traveling at a high speed.

Red-letter days in the history of electricity were the day on which Loomis discovered, and dutifully recorded in his diary, the relation between electric currents and magnetism, and the day on which he succeeded for the first time in "sending signals to a distance without wires."

Anticipated Radio, TV, Radar

With his ideas and his experiments in actual practice, he anticipated not only wireless telegraphy, but also the wave theory, which laid the foundation for radio, television, and radar. All these ultra-modern apparatuses operate on the same principle of electromagnetic waves traveling through the ether at the speed of light. These electromagnetic waves were described much later on, in 1892, by the German physicist Heinrich Hertz, a pupil of the famous Hermann Helmholtz, and are now called "hertzian waves."

Ideas spread, as everyone knows, from mind to mind like contagious diseases; once they break out, no one can say who had them first.

But Mahlon Loomis, a prophet of great vision, was the first to give these important findings practical application. Thus he obeyed the unwritten law of the Royal Society of London, whose members—as Robert Boyle, the "Father of Chemistry," once wrote to a friend in Paris—thought highly only of knowledge which leads to practical results.

Problems of Financing

In 1872 a patent was granted to Loomis by the United States Government for "a new and improved mode of telegraphing and of generating light, heat and motive power without the aid of wires, artificial batteries or cables to form such circuit."

Unable to finance his own telegraphy invention, Loomis interested a group of Boston capitalists in putting it on a commercial basis. When the Black Friday panic came in 1869, these financiers lost everything they had, and Loomis lost their backing. Still patient and undiscouraged, Loomis went back to his dental office. After a time he went to Chicago, where some wealthy bankers agreed to finance him. But ill luck dogged his heels. The Great Chicago fire occurred, and his prospective backers were reduced to poverty.

Now Loomis and his friends appealed to Congress to help them make America the first country in the world to introduce wireless telegraphy. In 1872 the legislature passed a bill, creating the Loomis Aerial Telegraph Company. The bill was signed by President Ulysses S. Grant. But nothing came of it, since the $50,000 necessary for commercial exploitation of Loomis' invention was never appropriated. In presenting Loomis' petition to Congress, Senator Charles Sumner of Massachusetts said: "I perform a duty, and I content myself with remarking that it is either a great case of moonshine or it marks a great epoch in the progress of inventions. Before Congress appropriates $50,000 to its development as proposed, it would be well to find out which." Had not all men of importance and greatness been held absurd or foolish in the beginning?

Senator Samuel Clarke Pomeroy, however, indorsed the Loomis scheme: "I believe in it. I have seen two or three experiments and I think there is something in it. I have seen it tested in a small way and I am inclined to think it will succeed."

Three years later, when the House of Representatives discussed the bill, Loomis' plan met with quite a different reception. Representative O. D. Conger from Michigan said: "I pray the House to consider it favorably and allow it to pass. If no good comes out of it there can be no harm, and favorable action by the House of Representatives on the bill will signify to the world that the House is disposed to consider, and not to treat with derision and scorn, every endeavor to better in some sort the condition of individual and collective man. The time may come, when it will be the proudest honor of those gentlemen who now listen with dreamy indifference to the hopes and aspirations of this inventor of the aerial

This simple highway marker near Bluemont, Va., tells the story, at once inspiring and disheartening, of the dentist-inventor.

telegraph system to have had their names coupled with this immortal discovery by even the empty encouragement of a reluctant affirmative vote." Another representative, W. S. Holman from Indiana, favored the bill: " 'There are more things in heaven and earth than our philosophy has dreamed of.' We do not know what grand truths we are stumbling on every day of our lives or how near we are to the solution of that mystery which leads into the portals of eternal wisdom, which we only see dimly and shadowy as a dream—an intellectual vision."

Loomis' invention was seen only dimly and in shadow. The world did not recognize its enormous importance.

In June 1897, 31 years after Loomis' demonstration of wireless telegraphy, Guglielmo Marconi sent his first wireless message nine miles via the very same hertzian waves that Loomis had used successfully. Marconi first put wireless telegraphy in Italy on a business footing, but the fact remains that, had Congress supported Mahlon Loomis when he appealed to it for financial aid, the United States would now be able to claim the honor of this dazzling discovery.

Loomis' struggle to win recognition for his discovery makes an interesting and pathetic story. Possessed by a big idea, absolutely convinced of its value for the world, surrounded by money and men who were investing large sums in many less worthy enterprises, Loomis was yet not able to command a dollar to perfect his invention and put it to work. Instead, it was dismissed as an "airy nothing" and he was dubbed a "dreamer" and made the butt of ridicule, the target of merciless witticisms. Such is the fate of the big man who is born too soon. The hand of chance is often the deciding factor. Having sacrificed his health, his money, and his dental practice to a great idea, after several years of struggle he retired to a farm in Virginia, to await the day when others more fortunate than he finally should reap the glory.

His brother describes Mahlon Loomis' last hours: "During his last illness he was uplifted and strengthened by the consciousness that the world would some time understand and realize the grandeur of his discovery. He seemed to be indifferent as to his having the glory and renown of it, but he wanted mankind to enjoy the fruits of his discoveries, maintaining that it would be the means of establishing a brotherhood among the nations and races that nothing else could accomplish, and would give to the children of men grander and truer conceptions of Deity than now prevailed. There was *one* thought that at times brought sadness to his heart. 'I know that I am by some, even many, regarded as a crank—by some perhaps as a fool—for allowing myself to the sacrifice of material advantages to abandon a lucrative profession and pursue this *ignis fatuus*, but I know that I am right, and if the present generation lives long enough their opinions will be changed—and their wonder will be that they did not perceive it before. I shall never see it perfected—but it will be, and others will have the honor of the discovery. Still, I do not care for that—except it would be gratifying, I confess, to live to see the world acknowledge that I am at least sane; or at least such a crank as God employs to move the world. By confining myself to the ordinary routine of affairs I could have made, no doubt, a comfortable living, even more than a competency—then passed away and been forgotten—but an impulse has driven me that I could not resist.' "

720 Washington Avenue
New York 40, N. Y.

ALL TIED UP

Her dental appointment was Monday at ten,
But the nurse phoned and changed it to three.
A subsequent shift made it Wednesday at four
Without an apology.

On Wednesday the date was postponed for a day
Since appointments were running behind.
Again she was counseled to: Make it next week
And coolly asked: Did she mind?

She cannot change dentists. Her reasons make sense,
Yet such scrambling of dates thorns her life.
And why does she stand for this merry-go-round?
She's the dentist's wife!

DOROTHY R. McWOOD

A MORAL OBLIGATION

By KAY LIPKE WARREN

A reputable dentist in our community recently died quite suddenly on a Saturday afternoon. It was a great shock to all who had known and loved him—his friends, his patients, and especially his widow.

In the midst of her grief, she found herself called upon to make a bewildering number of important decisions, not the least of which was the disposition of her husband's dental equipment and the practice which he had built up with great care through his long professional years in the same locality.

What did she do? How did she react to the very distressing situation in which she found herself? Did she succumb to her grief, or did she face the stern facts staunchly, feeling a strong moral obligation to look after her husband's dental affairs as wisely as possible?

There is a lesson for every dental family in the way this woman handled the situation. There is also a lesson in the businesslike manner in which her husband had prepared for the emergency by keeping his financial and professional affairs in order, and by taking his wife into his confidence, educating her in business and professional matters in case something happened to him and she was called upon suddenly to shoulder unaccustomed responsibilities.

There are far too many dental families throughout the country in which the wife knows little or nothing of the financial status of her husband and has no conception of the value—or lack of value—of his office equipment and practice. Thus very often a good practice is dissipated or sold for little or nothing upon the death of the dentist.

Dental societies throughout the country are taking cognizance of this problem and advising and assisting the widows of dentists and otherwise protecting their interests. They are also counseling dentists to put their financial affairs in order and, above all else, to take their wives into their confidence.

In the case under discussion both the dentist and his wife had known for some years that he had a serious heart condition. Because he wished to continue to practice, he and his wife made radical adjustments in their way of living. He practiced only part of the day; his wife drove him to the office and assumed many office responsibilities. He worked without a dental assistant, looking after the many loyal patients who had been coming to him for years and depended upon him completely for their dental work. He not only put his financial affairs in order, but talked everything over with his wife.

For years things went along satisfactorily until that fatal Saturday afternoon. Even in the midst of her first shock and grief, his widow remembered that her husband's appointment book was filled for the following Monday morning. So, early that Monday morning she was in his office, driven there by a feeling of responsibility to her husband's patients. It was a distressing ordeal to call them personally and cancel appointments, but she said later that it helped her to devote her energies to others that day, instead of thinking only of herself.

She attended to a number of other matters alone that morning, one of the first being to notify the management office of the building. Because her husband had briefed her, she knew that there was a death clause in his lease which broke the lease automatically after the payment of two months' rent. Her husband had refused to sign a lease without this provision.

She also called the office of the Southern California State Dental Society and talked with its distinguished executive secretary, Mr. James Robinson, seeking advice on the sale of her husband's practice. Mr. Robinson suggested that she contact the dental supply company with which her husband had done business, and have an appraisal made of the value of his

dental equipment. Because it was old, he warned her the appraisal would not be high.

This realistic opinion confirmed her husband's advice, for he had explained to her that older equipment had little value except as it was turned in on the purchase of new equipment. (Explaining this to her had been one of the many wise provisions her husband had made, for a great many widows in their ignorance hold an exaggerated idea of the value of all that shining dental equipment and feel they are being defrauded when a low estimate of its value is made.)

Mr. Robinson further advised her to take the amount of the appraisal and add the last month's gross income in the office and she would arrive at an approximate figure which she might reasonably expect to get for both equipment and practice.

She accepted his advice. She told her husband's dental friends and dental supply salesmen to be on the alert for a capable dentist who might be interested in buying the practice. In the meantime, she got out the statements, and every one of her husband's patients paid promptly. She did not lose a penny.

In talking with his patients over the phone, she appreciated as never before the great bond that exists between a dentist and his patients. She discovered that they looked to her for advice as they found themselves adrift after long years of depending upon her husband for dental work. Because of this, she determined not to sell his practice to a dentist who did not live up to the same general code of ethics and dental skill which had governed her husband's professional conduct through all the years. She felt she would be untrue to her husband's memory if she sold to the wrong man.

Within a few weeks, the right dentist was found and the deal successfully consummated. She felt rewarded when patients later called her to express their liking for the new dentist and his work.

One of the wisest things this dentist's widow did was to contact Mr. Robinson. For years he has been working on a plan to protect the interests of the widows of dental society members and is vitally concerned with this project.

As long ago as 1952, he made a talk before the National State Officers Conference in St. Louis advocating the appointment of special committees in all dental societies whose sole duty it would be to call upon the widow of a dentist immediately after his death to offer help in matters pertaining to the dentist's office and patients, and also to advise the dental assistant as to how to handle telephone calls and unfinished dental work. In many parts of the country since then, committees of this type have been formed and are functioning successfully, aiding the widows of fellow dentists.

Mr. Robinson also feels that every dentist should make a pact with three of his closest dental friends to provide for the liquidation of his private practice in the event of sudden death. Each of the four should make a pledge to look after the unfinished dental work of any of the other three, without charge, in case of emergency, and to estimate a fair and satisfactory price for a deceased colleague's practice and screen applicants who wished to buy the practice in order to select a dentist who came closest in age, ability, and financial reliability to the deceased man.

Upon the death of a prominent young Southern California dentist recently, the success of such a pact was proven when three of his friends stepped in and looked after his affairs purely through friendship. He had the finest new equipment, a magnificent office, well-trained assistants, a long-term lease, and a valuable card file of worthwhile patients. With an establishment of this caliber, the practice was sold for a high price, due in large measure to the astute handling of his affairs by his dental friends.

The Los Angeles County Dental Society in 1960, with the assistance of Miss Ruth Hart, executive secretary, issued to its members a brochure on estate planning which, if filled out by a member dentist, gives a complete case history of his financial, personal, and dental affairs. In case of his death it would provide his widow with a complete picture of his financial assets and his wishes as regards his office, his finances, and the future care of his children.

The brochure provides for the name of his personal physician, where his medical history can be found; and, if the dentist and his wife should die together, it tells exactly what the dentist wishes to be done regarding the future of the children, his office, and all other matters of importance.

A whole page is devoted to the dentist's recommendations for the disposal of his dental practice, the names of the close dental friends who could be trusted in an emergency, the location of his will, his tax records, insurance papers, bank books, stocks and bonds, and outstanding notes.

It erases all the mystery and a good many of the problems facing those who are left. This estate-planning brochure is not only an important service provided by the Los Angeles County Dental Society for its members, but it is also a reminder to dentists to give a good long look at their affairs and keep them in order.

It is a good thing when dental societies feel this strong moral obligation to look after the interests of the families of deceased members. However, the first step must be taken by the dentist. After all, it is the welfare of the family the dental society is trying to protect.

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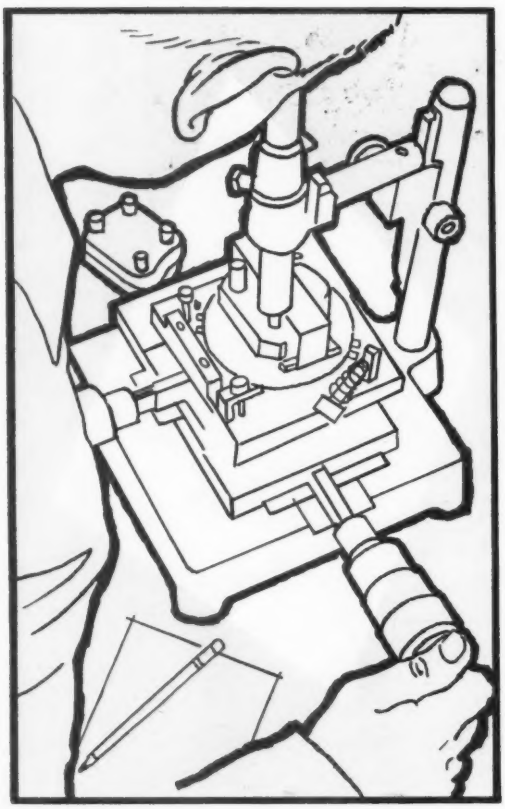

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